

* PLEASE GIVE REQUEST TO Ms. K. FULLER

Access DB#

99311

SEARCH REQUEST FORM

Scientific and Technical Information Center

Requester's Full Name: HELEN PERZUTO Examiner #: 70058 Date: 7/21/03
Art Unit: 1713 Phone Number 308-2393 Serial Number: 09/295,163
Mail Box and Bldg/Room Location: CP3-8B16 Results Format Preferred (circle) PAPER DISK E-MAIL

If more than one search is submitted, please prioritize searches in order of need.

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: SEE ATTACHE

Inventors (please provide full names): _____

Earliest Priority Filing Date: 6/30/00

For Sequence Searches Only Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.

* CLAIMS 7-12 PENDING *

An ionic conductive membrane based on a fluorinated copolymer shown in (1) in claim 7. Narrower species shown in (2)-(5) in claim 9.

KEY WORDS:

trifluorostyrene; membrane, conductive, sulfonation/sulfonated

Please attach search report to pages submitted.
Thanks much!

BEST AVAILABLE COPY

STAFF USE ONLY

Type of Search

Vendors and cost where applicable

=> FILE REG

FILE 'REGISTRY' ENTERED AT 14:44:55 ON 22 JUL 2003
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
COPYRIGHT (C) 2003 American Chemical Society (ACS)

Property values tagged with IC are from the ZIC/VINITI data file
provided by InfoChem.

STRUCTURE FILE UPDATES: 21 JUL 2003 HIGHEST RN 552272-14-7
DICTIONARY FILE UPDATES: 21 JUL 2003 HIGHEST RN 552272-14-7

TSCA INFORMATION NOW CURRENT THROUGH JANUARY 6, 2003

Please note that search-term pricing does apply when
conducting SmartSELECT searches.

Crossover limits have been increased. See HELP CROSSOVER for details.

Experimental and calculated property data are now available. See HELP
PROPERTIES for more information. See STN Note 27, Searching Properties
in the CAS Registry File, for complete details:
<http://www.cas.org/ONLINE/STN/STNOTES/stnotes27.pdf>

=> FILE HCAPLUS

FILE 'HCAPLUS' ENTERED AT 14:44:59 ON 22 JUL 2003
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
COPYRIGHT (C) 2003 AMERICAN CHEMICAL SOCIETY (ACS)

Copyright of the articles to which records in this database refer is
held by the publishers listed in the PUBLISHER (PB) field (available
for records published or updated in Chemical Abstracts after December
26, 1996), unless otherwise indicated in the original publications.
The CA Lexicon is the copyrighted intellectual property of the
the American Chemical Society and is provided to assist you in searching
databases on STN. Any dissemination, distribution, copying, or storing
of this information, without the prior written consent of CAS, is
strictly prohibited.

FILE COVERS 1907 - 22 Jul 2003 VOL 139 ISS 4
FILE LAST UPDATED: 21 Jul 2003 (20030721/ED)

This file contains CAS Registry Numbers for easy and accurate
substance identification.

=> D QUE L29

L12 STR

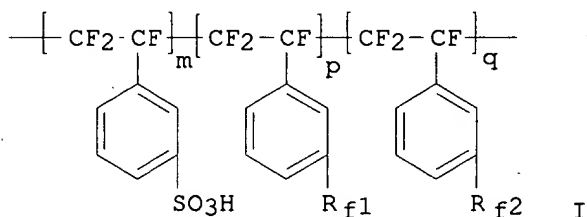
L24 5 SEA FILE=HCAPLUS ABB=ON L21 AND ?SULFON?
 L25 5 SEA FILE=HCAPLUS ABB=ON L23 OR L24
 L26 70 SEA FILE=REGISTRY ABB=ON L17 AND 1-4/S
 L27 33 SEA FILE=HCAPLUS ABB=ON L26
 L28 1 SEA FILE=HCAPLUS ABB=ON L27 AND MEMBRAN?
 L29 5 SEA FILE=HCAPLUS ABB=ON L25 OR L28

=> D L29 1-5 ALL HITSTR

5 CA references with utility

L29 ANSWER 1 OF 5 HCAPLUS COPYRIGHT 2003 ACS on STN
 AN 2003:501591 HCAPLUS
 DN 139:37548
 TI Preparation of proton exchange fluoropolymers of trifluorostyrenes and application thereof
 IN Lu, Long; Hu, Liqing; Zhang, Weixing; Li, Wei; He, Yan; Wang, Yi
 PA Shanghai Inst. of Organic Chemistry, Chinese Academy of Sciences, Peop. Rep. China
 SO Faming Zhuanli Shenqing Gongkai Shuomingshu, 15 pp.
 CODEN: CNXXEV
 DT Patent
 LA Chinese
 IC ICM B01J041-14
 CC 38-3 (Plastics Fabrication and Uses)
 Section cross-reference(s): 72
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	CN 1346707	A	20020501	CN 2001-132100	20011102
PRAI	CN 2001-132100		20011102		
GI					



AB The fluoropolymers of trifluorostyrenes (the structural formula I, in which Rf1 is H or CyF2y+1, Rf2 is (CF2CF2)nOCF2CF2SO3H, y = 1, 2, 3, 4, 5 or 6, n = 1, 2, 3 or 4, and m:p:q = 39.2-7.2:9.8-1.8:1) useful for prepg. proton exchange **membrane** in fuel cell had a numeric mol. wt. 20-200 x 104, a dispersion coeff. 1.5-4.5, and an ion exchange capacity 1.5-3.5 mmol HSO4+/g (resin). The synthesizing process comprises (I) radical polymg. of PhCF=CF2, Rf1PhCF=CF2 and Rf2PhCF=CF2 at a mole ratio of 39.2-7.2:9.8-1.8:1 at 30-70.degree. for 40-100 h in the presences of an initiator (such as K2S2O8) and an emulsifying agent (such as n-C12H25NH2Cl), (II) dissolving the obtained polymer in dichloromethane, and allowing the polymer to **sulfonate** with a **sulfonating** agent (a mixt. of tri-Et phosphate, SO3 and dichloromethane) at 30-60.degree. for 30 min-1.5 h, hydrolyzing of the **sulfonated** polymer in an 10-50% aq. soln. of a monobasic metal hydroxide at

60-80.degree. for 4-8 h to obtain a monobasic metal ion exchange resin, and (IV) H+ exchanging of the ion exchange resin with a 0.5-10 mol/L H2SO4 soln. for 15-30 min to obtain the product.

ST polytrifluorostyrene copolymer **sulfonation** product proton exchange resin synthesis; fuel cell **membrane**

IT Fuel cells

(prepn. of proton exchange fluoropolymers of trifluorostyrenes and application for fuel cell **membrane**)

IT Hydrolysis

Ion exchange **membranes**

Sulfonation

(prepn. of proton exchange fluoropolymers of trifluorostyrenes and application thereof)

IT Fluoropolymers, uses

RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(prepn. of proton exchange fluoropolymers of trifluorostyrenes and application thereof)

IT 7446-11-9, Sulfur trioxide, reactions 7681-11-0, Potassium iodide, reactions 105417-08-1, (Trifluorovinyl)zinc bromide

RL: RCT (Reactant); RACT (Reactant or reagent)

(in prepn. of proton exchange fluoropolymers of trifluorostyrenes)

IT 7664-93-9, Sulfuric acid, reactions 8007-58-7, Nitric acid, fuming

RL: RGT (Reagent); RACT (Reactant or reagent)

(in prepn. of proton exchange fluoropolymers of trifluorostyrenes)

IT 591-50-4, Phenyl iodide 598-73-2, Bromotrifluoroethene 67990-77-6

RL: RCT (Reactant); RACT (Reactant or reagent)

(in prepn. of proton exchange fluoropolymers of trifluorostyrenes and application thereof)

IT 447-14-3P, .alpha.,.beta.,.beta.-Trifluorostyrene 540770-30-7P

540770-31-8P 540770-32-9P 540770-34-1P 540770-35-2P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(in prepn. of proton exchange fluoropolymers of trifluorostyrenes and application thereof)

IT **540770-36-3P 540770-38-5P 540770-40-9P**

540770-41-0P

RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(prepn. of proton exchange fluoropolymers of trifluorostyrenes and application thereof)

IT **540770-36-3DP, sulfonated product 540770-38-5DP,**

sulfonated product 540770-40-9DP, sulfonated

product 540770-41-0DP, sulfonated product

RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(prepn. of proton exchange fluoropolymers of trifluorostyrenes and application thereof)

IT **540770-36-3P 540770-40-9P 540770-41-0P**

RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(prepn. of proton exchange fluoropolymers of trifluorostyrenes and application thereof)

RN 540770-36-3 HCAPLUS

CN Ethanesulfonyl fluoride, 2-[[[6-(3-ethenylphenyl)-1,1,2,2,3,3,4,4,5,5,6,6-dodecafluorohexyl]oxy]-1,1,2,2-tetrafluoro-, polymer with

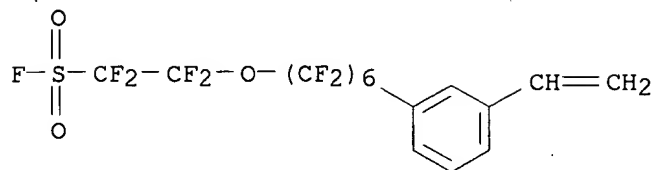
(trifluoroethenyl)benzene and 1-(trifluoroethenyl)-3-

(trifluoromethyl)benzene (9CI) (CA INDEX NAME)

CM 1

CRN 540770-35-2

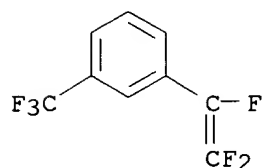
CMF C16 H7 F17 O3 S



CM 2

CRN 82907-02-6

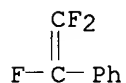
CMF C9 H4 F6



CM 3

CRN 447-14-3

CMF C8 H5 F3



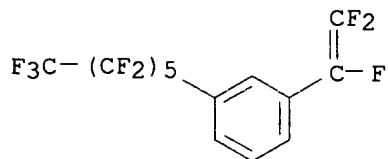
RN 540770-40-9 HCAPLUS

CN Ethanesulfonyl fluoride, 2-[[6-(3-ethenylphenyl)-1,1,2,2,3,3,4,4,5,5,6,6-dodecafluorohexyl]oxy]-1,1,2,2-tetrafluoro-, polymer with 1-(tridecafluorohexyl)-3-(trifluoroethenyl)benzene and (trifluoroethenyl)benzene (9CI) (CA INDEX NAME)

CM 1

CRN 540770-39-6

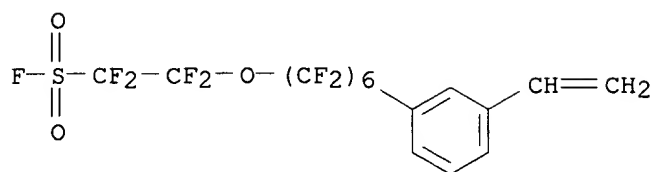
CMF C14 H4 F16



CM 2

CRN 540770-35-2

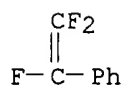
CMF C16 H7 F17 O3 S



CM 3

CRN 447-14-3

CMF C8 H5 F3



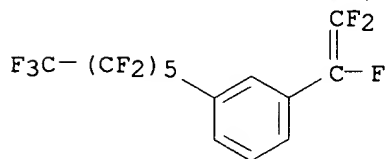
RN 540770-41-0 HCAPLUS

CN Ethanesulfonyl fluoride, 2-[2-(3-ethenylphenyl)-1,1,2,2-tetrafluoroethoxy]-1,1,2,2-tetrafluoro-, polymer with 1-(tridecafluorohexyl)-3-(trifluoroethenyl)benzene and (trifluoroethenyl)benzene (9CI) (CA INDEX NAME)

CM 1

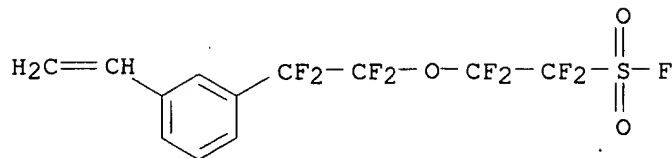
CRN 540770-39-6

CMF C14 H4 F16



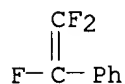
CM 2

CRN 540770-37-4
CMF C12 H7 F9 O3 S



CM 3

CRN 447-14-3
CMF C8 H5 F3



IT 540770-36-3DP, sulfonated product 540770-40-9DP
, sulfonated product 540770-41-0DP, sulfonated
product

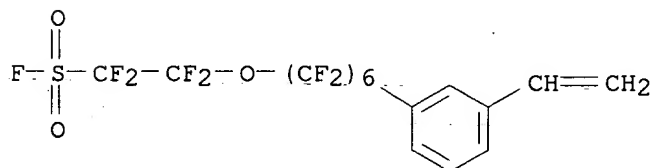
RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or
engineered material use); PREP (Preparation); USES (Uses)
(prepn. of proton exchange fluoropolymers of trifluorostyrenes and
application thereof)

RN 540770-36-3 HCAPLUS

CN Ethanesulfonyl fluoride, 2-[[6-(3-ethenylphenyl)-1,1,2,2,3,3,4,4,5,5,6,6-
dodecafluorohexyl]oxy]-1,1,2,2-tetrafluoro-, polymer with
(trifluoroethenyl)benzene and 1-(trifluoroethenyl)-3-
(trifluoromethyl)benzene (9CI) (CA INDEX NAME)

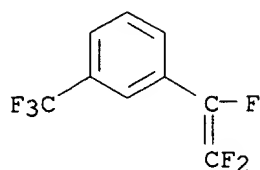
CM 1

CRN 540770-35-2
CMF C16 H7 F17 O3 S



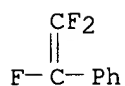
CM 2

CRN 82907-02-6
CMF C9 H4 F6



CM 3

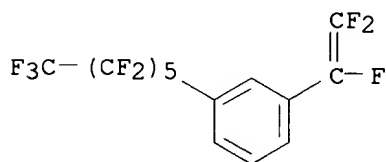
CRN 447-14-3
CMF C8 H5 F3



RN 540770-40-9 HCAPLUS
CN Ethanesulfonyl fluoride, 2-[[6-(3-ethenylphenyl)-1,1,2,2,3,3,4,4,5,5,6,6-dodecafluorohexyl]oxy]-1,1,2,2-tetrafluoro-, polymer with 1-(tridecafluorohexyl)-3-(trifluoroethenyl)benzene and (trifluoroethenyl)benzene (9CI) (CA INDEX NAME)

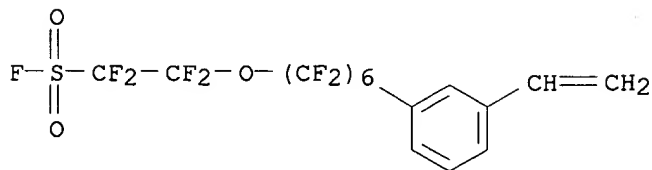
CM 1

CRN 540770-39-6
CMF C14 H4 F16.



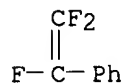
CM 2

CRN 540770-35-2
CMF C16 H7 F17 O3 S



CM 3

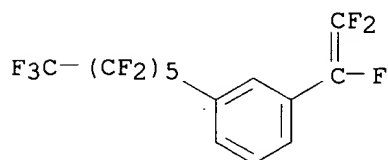
CRN 447-14-3
CMF C8 H5 F3



RN 540770-41-0 HCAPLUS
CN Ethanesulfonyl fluoride, 2-[2-(3-ethenylphenyl)-1,1,2,2-tetrafluoroethoxy]-1,1,2,2-tetrafluoro-, polymer with 1-(tridecafluorohexyl)-3-(trifluoroethenyl)benzene and (trifluoroethenyl)benzene (9CI) (CA INDEX NAME)

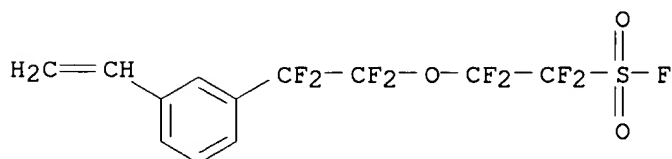
CM 1

CRN 540770-39-6
CMF C14 H4 F16



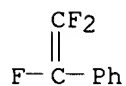
CM 2

CRN 540770-37-4
CMF C12 H7 F9 O3 S



CM 3

CRN 447-14-3
CMF C8 H5 F3



L29 ANSWER 2 OF 5 HCAPLUS COPYRIGHT 2003 ACS on STN

AN 2002:31060 HCAPLUS

DN 136:86247

TI Partially **sulfonated** fluorinated copolymer based on trifluorostyrene and substituted vinyl compound and use for ionic conductive polymer **membrane** for a fuel cell

IN Kim, Hae-Kyoung

PA Samsung Electronics Co., Ltd., S. Korea

SO Eur. Pat. Appl., 15 pp.

CODEN: EPXXDW

DT Patent

LA English

IC C08F212-14; C08F008-36; C08J003-24; C08J005-22; H01M008-10

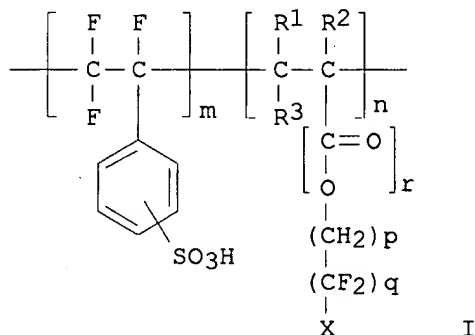
CC 35-4 (Chemistry of Synthetic High Polymers)

Section cross-reference(s): 38, 52

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 1170310	A2	20020109	EP 2001-305699	20010629
	EP 1170310	A3	20020130		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
	US 2002015874	A1	20020207	US 2001-895163	20010702
PRAI	KR 2000-37394	A	20000630		

GI



AB The partially crosslinked fluorinated copolymer I is prepd., where R1-3 = F, H or Me; X = OH or F3C; m > 0; n > 0; and p, q and r .gtoreq.0. When a partially crosslinked copolymer is used, the degree of swelling of the polymer **membrane** and fuel crossover can be reduced. An example polymer is **sulfonated** heptafluorodecyl methacrylate-.alpha.-.beta.-.beta.-trifluorostyrene copolymer.

ST heptafluorodecyl methacrylate trifluorostyrene copolymer
sulfonated membrane

IT Fuel cell separators
Fuel cells

(partially **sulfonated** fluorinated copolymer based on trifluorostyrene and substituted vinyl compd. for ionic conductive polymer **membrane** for a fuel cell)

IT **Membrane** electrodes

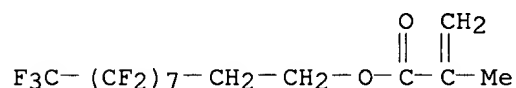
(proton exchange; partially **sulfonated** fluorinated copolymer based on trifluorostyrene and substituted vinyl compd. for ionic

- conductive polymer **membrane** for a fuel cell)
- IT Fluoropolymers, preparation
 RL: DEV (Device component use); IMF (Industrial manufacture); PREP
 (Preparation); USES (Uses)
 (sulfonated; partially sulfonated fluorinated
 copolymer based on trifluorostyrene and substituted vinyl compd. for
 ionic conductive polymer **membrane** for a fuel cell)
- IT **386284-80-6DP**, Heptadecafluorodecyl methacrylate-
 .alpha.,.beta.,.beta.-trifluorostyrene copolymer, **sulfonated**
386284-81-7DP, **sulfonated 386284-82-8DP**,
sulfonated 386284-83-9DP, Heptadecafluorodecyl
 acrylate-.alpha.,.beta.,.beta.-trifluorostyrene copolymer,
sulfonated
 RL: DEV (Device component use); IMF (Industrial manufacture); PREP
 (Preparation); USES (Uses)
 (partially **sulfonated** fluorinated copolymer based on
 trifluorostyrene and substituted vinyl compd. for ionic conductive
 polymer **membrane** for a fuel cell)
- IT **386284-80-6DP**, Heptadecafluorodecyl methacrylate-
 .alpha.,.beta.,.beta.-trifluorostyrene copolymer, **sulfonated**
386284-81-7DP, **sulfonated 386284-82-8DP**,
sulfonated 386284-83-9DP, Heptadecafluorodecyl
 acrylate-.alpha.,.beta.,.beta.-trifluorostyrene copolymer,
sulfonated
 RL: DEV (Device component use); IMF (Industrial manufacture); PREP
 (Preparation); USES (Uses)
 (partially **sulfonated** fluorinated copolymer based on
 trifluorostyrene and substituted vinyl compd. for ionic conductive
 polymer **membrane** for a fuel cell)
- RN 386284-80-6 HCAPLUS
- CN 2-Propenoic acid, 4,4,5,5,6,6,7,7,8,8,9,9,10,10,11,11,11-
 heptadecafluoroundecyl ester, polymer with (trifluoroethenyl)benzene (9CI)
 (CA INDEX NAME)

CM 1

CRN 1996-88-9

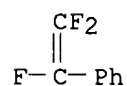
CMF C14 H9 F17 O2



CM 2

CRN 447-14-3

CMF C8 H5 F3



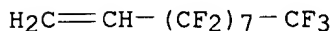
RN 386284-81-7 HCAPLUS

CN Benzene, (trifluoroethenyl)-, polymer with 3,3,4,4,5,5,6,6,7,7,8,8,9,9,10,10,10-heptafluoro-1-decene (9CI) (CA INDEX NAME)

CM 1

CRN 21652-58-4

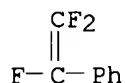
CMF C10 H3 F17



CM 2

CRN 447-14-3

CMF C8 H5 F3



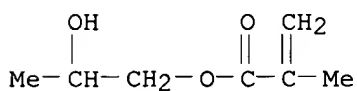
RN 386284-82-8 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 2-hydroxypropyl ester, polymer with (trifluoroethenyl)benzene (9CI) (CA INDEX NAME)

CM 1

CRN 923-26-2

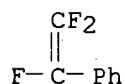
CMF C7 H12 O3



CM 2

CRN 447-14-3

CMF C8 H5 F3

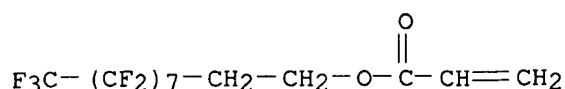


RN 386284-83-9 HCAPLUS

CN 2-Propenoic acid, 3,3,4,4,5,5,6,6,7,7,8,8,9,9,10,10,10-heptafluorodecyl ester, polymer with (trifluoroethenyl)benzene (9CI) (CA INDEX NAME)

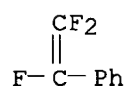
CM 1

CRN 27905-45-9
CMF C13 H7 F17 O2



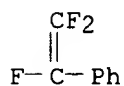
CM 2

CRN 447-14-3
CMF C8 H5 F3



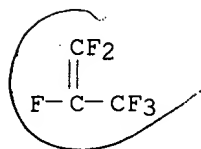
L29 ANSWER 3 OF 5 HCAPLUS COPYRIGHT 2003 ACS on STN
AN 1982:493555 HCAPLUS
DN 97:93555
TI Permselectivity of ion exchange **membranes** from sorption data and its relation to nonuniformity of **membranes**
AU Wodzki, Romuald; Narebska, Anna; Ceynowa, Jozef
CS Inst. Chem., Nicholas Copernicus Univ., Torun, 87-100, Pol.
SO Angewandte Makromolekulare Chemie (1982), 106, 23-35
CODEN: ANMCBO; ISSN: 0003-3146
DT Journal
LA English
CC 38-3 (Plastics Fabrication and Uses)
AB An equation was derived which relates the permselectivity of cation exchange **membranes** to their nonuniformity and vol. fraction of nonselective domains. Transport nos. of the H1+ ion in the **membranes** equilibrated with H2SO4 solns. were calcd. using sorption data according to the equation of Arnold and Swift (1967). The validity of the equation was verified by independent detn. of transport nos. using the EMF method.
ST cation exchanger permselectivity nonuniformity; **membrane** cation exchanger permselectivity
IT Cation exchangers
(**membranes**, permselectivity of, calcn. of)
IT 9069-90-3D, **sulfonated 58813-64-2D, sulfonated**
58857-39-9
RL: USES (Uses)
(graft, **membranes**, permselectivity of, calcn. of)
IT **58813-64-2D, sulfonated**
RL: USES (Uses)
(graft, **membranes**, permselectivity of, calcn. of)
RN 58813-64-2 HCAPLUS
CN Benzene, (trifluoroethenyl)-, polymer with 1,1-difluoroethene and 1,1,2,3,3,3-hexafluoro-1-propene (9CI) (CA INDEX NAME)
CM 1

CRN 447-14-3
CMF C8 H5 F3



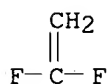
CM 2

CRN 116-15-4
CMF C3 F6



CM 3

CRN 75-38-7
CMF C2 H2 F2



L29 ANSWER 4 OF 5 HCAPLUS COPYRIGHT 2003 ACS on STN
AN 1979:31165 HCAPLUS
DN 90:31165
TI Trifluorostyrene **sulfonic acid membranes**
IN D'Agostino, Vincent F.; Lee, Joseph Y.; Cook, Edward H., Jr.
PA Hooker Chemicals and Plastics Corp., USA; RAI Research Corp.
SO U.S., 9 pp.
CODEN: USXXAM
DT Patent
LA English
IC C25B013-08
NCL 204159170
CC 72-10 (Electrochemistry)
Section cross-reference(s): 49
FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 4012303	A	19770315	US 1974-535636	19741223
	GB 1498990	A	19780125	GB 1975-51282	19751215
	FR 2295982	A1	19760723	FR 1975-38860	19751218
	BR 7508491	A	19760824	BR 1975-8491	19751219
	BE 836970	A1	19760622	BE 1975-163033	19751222
	SE 7514517	A	19760624	SE 1975-14517	19751222
	FI 7503626	A	19760624	FI 1975-3626	19751222

NL 7514956	A	19760625	NL 1975-14956	19751222
DE 2558393	A1	19760624	DE 1975-2558393	19751223
NO 7504348	A	19760624	NO 1975-4348	19751223
JP 51089881	A2	19760806	JP 1975-153857	19751223
PL 97696	P	19780330	PL 1975-185926	19751223
US 4107005	A	19780815	US 1976-741163	19761111
US 4113922	A	19780912	US 1977-850194	19771110
PRAI US 1974-535636		19741223		
US 1976-741163		19761111		

AB A **membrane** or diaphragm for various electrochem. cells such as chlor-alkali or fuel cells is obtained by irradiation. Thus, .alpha., .beta., .beta.-trifluorostyrene in an inert org. solvent is grafted onto an inert film such as tetrafluoroethylene-hexafluoropropylene copolymer by irradiation with ⁶⁰Co .gamma.-radiation, and the **sulfonated**. This **sulfonated** polymer was used in a brine electrolysis cell containing 200-235 g NaCl/L. The NaOH recovered from the cathode compartment contains less than .apprx.1% NaCl while Cl₂ is produced at a current efficiency >95%.

ST **sulfonated** fluorostyrene polymer **membrane**; electrochem cell **sulfonated membrane**; brine electrolysis **sulfonated membrane**; fluoroethylene fluoropropylene fluorostyrene polymer **membrane**; fuel cell **sulfonated membrane**; sodium hydroxide electroproduction **sulfonated membrane**; chlorine electroproduction **sulfonated membrane**

IT Brines
(electrolysis of, **sulfonated** trifluorostyrene-containing polymer **membrane** for)

IT Fuel cells
(**sulfonate** trifluorostyrene-containing polymer **membranes** for)

IT Electrolytic cells
(diaphragm, **sulfonated** trifluorostyrene-containing polymer for)

IT **58828-54-9D, sulfonated** 67184-03-6 68778-29-0 68812-67-9
RL: PRP (Properties)
(graft, for electrochem. cell **membrane**)

IT 7782-50-5P, preparation
RL: PREP (Preparation)
(manufacture of, in brine electrolysis in cell with **sulfonated** trifluorostyrene-containing polymer **membranes**)

IT 1310-73-2P, preparation
RL: PREP (Preparation)
(manufacture of, in electrolytic cell with **sulfonated** trifluorostyrene-containing polymer **membrane**)

IT **58828-54-9D, sulfonated**
RL: PRP (Properties)
(graft, for electrochem. cell **membrane**)

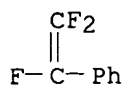
RN 58828-54-9 HCAPLUS

CN Benzene, (trifluoroethenyl)-, polymer with 1,1,2,3,3,3-hexafluoro-1-propene and tetrafluoroethene (9CI) (CA INDEX NAME)

CM 1

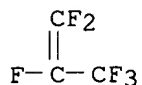
CRN 447-14-3

CMF C8 H5 F3



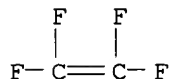
CM 2

CRN 116-15-4
CMF C3 F6



CM 3

CRN 116-14-3
CMF C2 F4



L29 ANSWER 5 OF 5 HCAPLUS COPYRIGHT 2003 ACS on STN
AN 1977:585328 HCAPLUS
DN 87:185328
TI Chemical stability of trifluorostyrene-based **membranes**
AU Ryzhov, M. G.; Vauchskii, Yu. P.; Larin, A. M.; Vel'ts, A. A.
CS USSR
SO Plasticheskie Massy (1976), (2), 68-71
CODEN: PLMSAI; ISSN: 0554-2901
DT Journal
LA Russian
CC 36-4 (Plastics Manufacture and Processing)
AB The resistance to oxidative degrdn. of ion exchange **membranes** prepd. by **sulfonation** of hexafluoropropylene-CH₂:CF₂ or hexafluoropropylene-C₂F₄ copolymers with styrene (I) or .alpha.,.beta.,.beta.-trifluorostyrene (II) depended primarily on the nature of oxidizing agent (HNO₃,CrO₃-H₂SO₄, KMnO₄, etc.) and to a lesser extent on the compn. of the copolymer. The **membranes** prepd. from copolymers contg. II units had somewhat higher chem. resistance than those contg. I units. Higher stability of the **membranes** prepd. from **sulfonated** II-grafted hexafluoropropylene-C₂F₄ copolymer, as compared to that of **sulfonated** II homopolymer, was ascribed to the presence of crosslinks in the graft copolymer.
ST ion exchange **membrane** stability; fluoropolymer **membrane** stability; oxidn stability ion exchanger; chem stability ion exchanger; fluorostyrene ion exchange **membrane**; trifluorostyrene copolymer ion exchanger
IT Cation exchangers
(**membranes**, fluoropolymers, chem. and oxidative stability of)

IT 30394-23-1D, **sulfonated 58813-64-2D, sulfonated 58828-54-9D, sulfonated**
 RL: USES (Uses)
 (graft, ion exchange **membranes** from, chem. and oxidative stability of)

IT 26838-51-7D, **sulfonated**
 RL: USES (Uses)
 (ion exchange **membranes** from, chem. and oxidative stability of)

IT **58813-64-2D, sulfonated 58828-54-9D, sulfonated**
 RL: USES (Uses)
 (graft, ion exchange **membranes** from, chem. and oxidative stability of)

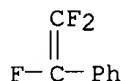
RN 58813-64-2 HCAPLUS

CN Benzene, (trifluoroethenyl)-, polymer with 1,1-difluoroethene and 1,1,2,3,3,3-hexafluoro-1-propene (9CI) (CA INDEX NAME)

CM 1

CRN 447-14-3

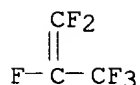
CMF C8 H5 F3



CM 2

CRN 116-15-4

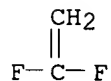
CMF C3 F6



CM 3

CRN 75-38-7

CMF C2 H2 F2

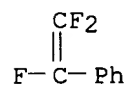


RN 58828-54-9 HCAPLUS

CN Benzene, (trifluoroethenyl)-, polymer with 1,1,2,3,3,3-hexafluoro-1-propene and tetrafluoroethene (9CI) (CA INDEX NAME)

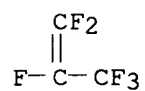
CM 1

CRN 447-14-3
CMF C8 H5 F3



CM 2

CRN 116-15-4
CMF C3 F6



CM 3

CRN 116-14-3
CMF C2 F4

